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IEEE Trial-Use Guide for Testing Permanent Magnet Machines

IEEE Power and Energy Society

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Electric Machinery Committee

And the
IEEE Industry Applications Society

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IEEE Std 1812™-2014

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IEEE-SA Standards Board

Abstract: Contained in this trial-use guide are instructions for conducting tests to determine the performance characteristics and machine parameters of permanent magnet (PM) machines. The tests described may be applied to motors and generators, as needed, and no attempt is made to partition this guide into clauses applying to motors and clauses applying to generators. It is not intended that this guide shall cover all possible tests, or tests of a research nature, but only those general methods that may be used to obtain the performance data and machine parameters. The schedule of factory and field tests, which may be required on new equipment, is normally specified by applicable standards or by contract specifications. This guide should not be interpreted as requiring any specific test in a given transaction or implying any guarantee as to specific performance indices or operating conditions.

The term specified conditions for tests as used in this guide will be considered as rated conditions unless otherwise agreed upon. Rated conditions apply usually to the quantities listed on the machine nameplate.

Keywords: characteristics, IEEE 1812™, permanent magnet machines, testing

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Introduction

This introduction is not part of IEEE Std 1812™-2014, IEEE Trial-Use Guide for Testing Permanent Magnet Machines.

The Motors Subcommittee of the Electric Machinery Committee of the IEEE Power and Energy Society proposed the project since permanent magnet machines are being employed for many industrial applications and there is no existing guide for testing these machines. The PAR P1812 was approved by IEEE-SA on December 09, 2009. On May 19, 2011, the IEEE Industry Applications Society became a co-sponsor of this working group and its activities.

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IEEE Trial-Use Guide for Testing Permanent Magnet Machines

1. Overview

1.1 Scope

This trial-use guide contains instructions for conducting tests to determine the performance characteristics and machine parameters of permanent magnet (PM) machines. The tests described may be applied to motors and generators as needed, and no attempt is made to partition this guide into clauses applying to motors and clauses applying to generators. It is not intended that this guide shall cover all possible tests, or tests of a research nature, but only those general methods that may be used to obtain the performance data and machine parameters. The schedule of factory and field tests, which may be required on new equipment, is normally specified by applicable standards or by contract specifications. This guide should not be interpreted as requiring any specific test in a given transaction or implying any guarantee as to specific performance indices or operating conditions.

The term specified conditions for tests as used in this guide will be considered as rated conditions unless otherwise agreed upon. Rated conditions apply usually to the quantities listed on the machine nameplate.

1.2 Purpose

Instructions for conducting tests to determine the performance characteristics and machine parameters of PM machines are covered in this guide. Additional tests can be required by the customers and operators to satisfy specific performance indices.